

Osmania University Common Entrance Test

Notations :

- Options shown in green color and with  icon are correct.
- Options shown in red color and with  icon are incorrect.

Question Paper Name :	M Sc Electronics 06th Dec 2020 Shift 1
Subject Name :	M.Sc. Electronics
Creation Date :	2020-12-06 16:37:11
Duration :	90
Number of Questions :	100
Total Marks :	100
Display Marks:	No
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console? :	Yes

M.Sc. Electronics

Group Number :	1
Group Id :	97108367
Group Maximum Duration :	0
Group Minimum Duration :	90
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	100
Is this Group for Examiner? :	No

PART A

Section Id :	97108396
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	971083110
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 9710837607 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The signed negative number in binary is identified by its _____.

Options :

97108330401. ✖ LSB

97108330402. ✔ MSB

97108330403. ✖ Nibble

97108330404. ✖ Byte

Question Number : 2 Question Id : 9710837608 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the decimal number is a fraction then its binary equivalent is obtained by _____ continuously.

Options :

97108330405. ✖ dividing with 2

97108330406. ✖ multiplying with 10

97108330407. ✔ multiplying with 2

97108330408. ✖ dividing with 10

Question Number : 3 Question Id : 9710837609 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The largest two digit hexadecimal number in the following is _____.

Options :

97108330409. ✖ (FC)₁₆

97108330410. ✖ (AF)₁₆

97108330411. ✖ (EF)₁₆

97108330412. ✔ (FE)₁₆

Question Number : 4 Question Id : 9710837610 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The octal equivalent of 11101001.010110 is _____

Options :

97108330413. ✓ 351.26

97108330414. ✗ 722.62

97108330415. ✗ 722.54

97108330416. ✗ 351.62

Question Number : 5 Question Id : 9710837611 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following gates will give a 1 when both of its inputs are 0?

Options :

97108330417. ✗ AND

97108330418. ✓ NAND

97108330419. ✗ OR

97108330420. ✗ XOR

Question Number : 6 Question Id : 9710837612 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

A circuit in which logic gates are connected to form a gating/logic network is known as a _____ logic circuit.

Options :

97108330421. ✗ systematic

97108330422. ✗ sequential

97108330423. ✓ combinational

97108330424. ✗ hardwired

Question Number : 7 Question Id : 9710837613 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

XOR gate is represented by the Boolean equation _____

Options :

97108330425. ✖ $A' + B'$

97108330426. ✖ $AB + A'B'$

97108330427. ✖ $A + A.B$

97108330428. ✔ $A'B + AB'$

Question Number : 8 Question Id : 9710837614 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following logic families has the shortest propagation delay?

Options :

97108330429. ✔ ECL

97108330430. ✖ BiCMOS

97108330431. ✖ CMOS

97108330432. ✖ 74SXX

Question Number : 9 Question Id : 9710837615 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the fan-out of a logic circuit is 4, then the circuit

Options :

97108330433. ✖ can drive only 2 inputs

97108330434. ✖ has 4 outputs

97108330435. ✔ can drive maximum of 4 inputs

97108330436. ✖ can give a gain of 4

Question Number : 10 Question Id : 9710837616 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

A RTL circuit consists of

Options :

97108330437. ✔ resistors and transistors

97108330438. ✖ resistors, transistors and inductors

97108330439. ✖ resistors, diodes and inductors

97108330440. ✖ resistors, capacitors and inductors

Question Number : 11 Question Id : 9710837617 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The expressions $Y = (A+B)(B+C)(C+A)$ and $Y = AB+BC+CA$ show _____ operations.

Options :

97108330441. ✖ respectively SOP and POS

97108330442. ✔ respectively POS and SOP

97108330443. ✖ POS

97108330444. ✖ SOP

Question Number : 12 Question Id : 9710837618 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The equivalent POS expression for SOP expression $ABC+AB'C'+AB'C+ABC'+A'B'C$ is _____

Options :

97108330445. ✖ $(A'+B'+C')(A'+B+C')(A'+B+C)$

97108330446. ✔ $(A+B+C)(A+B'+C)(A+B'+C')$

97108330447. ✖ $(A'+B'+C')(A+B'+C)(A+B'+C)$

97108330448. ✖ $(A+B+C)(A'+B+C')(A+B'+C)$

Question Number : 13 Question Id : 9710837619 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

A full subtracter circuit requires _____

Options :

97108330449. ✖ two inputs and two outputs

97108330450. ✖ two inputs and three outputs

97108330451. ✖ three inputs and one output

97108330452. ✔ three inputs and two outputs

Question Number : 14 Question Id : 9710837620 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

A flip-flop has _____

Options :

97108330453. ✖ one stable state only

97108330454. ✔ two stable states

97108330455. ✖ one stable state and one quasi-stable

97108330456. ✖ no stable state

Question Number : 15 Question Id : 9710837621 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the number of 'n' selected input lines in a multiplexer is equal to 2^m , then it requires _____ select lines.

Options :

97108330457. ✔ m

97108330458. ✖ 2

97108330459. ✖ n

97108330460. ✖ 2^n

Question Number : 16 Question Id : 9710837622 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

An 8-line-to-1-line multiplexer requires _____ select lines.

Options :

97108330461. ✖ 2

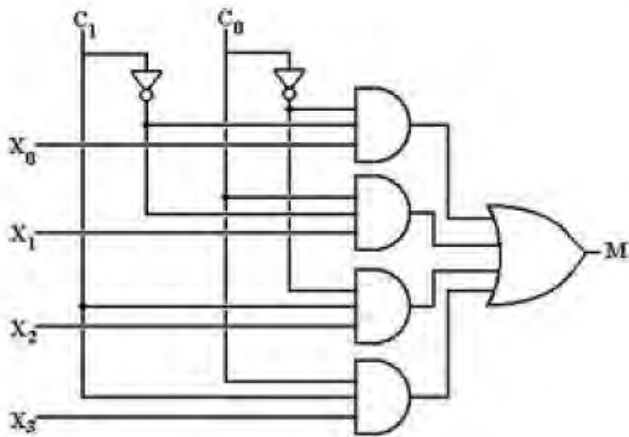
97108330462. ✖ 4

97108330463. ✓ 3

97108330464. ✗ 8

Question Number : 17 Question Id : 9710837623 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

In the following 4-to-1 multiplexer, if $C_1 = 0$ and $C_0 = 1$, then the output M is



Options :

97108330465. ✗ X_0

97108330466. ✓ X_1

97108330467. ✗ X_2

97108330468. ✗ X_3

Question Number : 18 Question Id : 9710837624 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

A 1-to-4 demultiplexer requires _____ gates.

Options :

97108330469. ✓ 4 AND

97108330470. ✗ 2 NAND

97108330471. ✗ 2 AND

97108330472. ✗ 4 NAND

Question Number : 19 Question Id : 9710837625 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following pairs of gates is required to construct a basic S-R flip-flop by cross-coupling?

Options :

97108330473. ✖ AND or OR gates

97108330474. ✔ NOR or NAND gates

97108330475. ✖ XOR or XNOR gates

97108330476. ✖ NOR and XNOR

Question Number : 20 Question Id : 9710837626 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following statements BEST describes the operation of a negative-edge-triggered D flip-flop?

Options :

97108330477. ✔ The logic level at the D input is transferred to Q on NGT of CLK.

97108330478. ✖ The Q output is ALWAYS identical to the CLK input if the D input is HIGH.

97108330479. ✖ The Q output is ALWAYS identical to the D input when CLK = PGT.

97108330480. ✖ The Q output is ALWAYS identical to the D input.

Question Number : 21 Question Id : 9710837627 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The IC with number _____ is used in shift register.

Options :

97108330481. ✖ 74123

97108330482. ✔ 74195

97108330483. ✖ 74124

97108330484. ✖ 74154

Question Number : 22 Question Id : 9710837628 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

What will be the bit pattern after the second clock when 1100 is to be stored in a 4-bit serial-in/serial-out shift register that is initially cleared? (LSB first)

Options :

97108330485. ✖ 1100

97108330486. ✖ 0011

97108330487. ✖ 1111

97108330488. ✔ 0000

Question Number : 23 Question Id : 9710837629 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If a n-bit binary counter consists 'n' flip-flops, then what is the maximum possible range of bit count?

Options :

97108330489. ✖ 0 to 2^n

97108330490. ✖ 0 to 2^{n+1}

97108330491. ✖ 0 to 2^{n-1}

97108330492. ✔ 0 to $2^n - 1$

Question Number : 24 Question Id : 9710837630 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the propagation delay of one flip-flop is 40 ns in a mod-16 ripple counter with 4 JK flip-flops, then the maximum frequency of the clock should be equal to _____

Options :

97108330493. ✖ 6.25 Hz

97108330494. ✖ 6.25 KHz

97108330495. ✔ 6.25 MHz

97108330496. ✖ 6.25 GHz

Question Number : 25 Question Id : 9710837631 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The total storage capacity of a memory that has cell matrix with $2m$ rows and $2n$ columns is _____.

Options :

97108330497. ✓ 2^{m+n}

97108330498. ✗ 2^{mn}

97108330499. ✗ $2(m+n)$

97108330500. ✗ $2mn$

Question Number : 26 Question Id : 9710837632 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Read-only memory (ROM) is _____

Options :

97108330501. ✗ non-volatile and stores the information that changes during system operation

97108330502. ✓ non-volatile and stores the information that does not change during system operation

97108330503. ✗ volatile and stores the information that changes during system operation

97108330504. ✗ volatile and stores the information that does not change during system operation

Question Number : 27 Question Id : 9710837633 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Find the Fourier sine transform of $p/(a^2+p^2)$.

Options :

97108330505. ✗ $(2\pi)e^{-ax}$

97108330506. ✗ $(2/\pi)e^{-ax}$

97108330507. ✓ $(\pi/2)e^{-ax}$

97108330508. ✗ $(1/\pi)e^{-ax}$

Question Number : 28 Question Id : 9710837634 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The fourier transform of $f(t) = e^{-at} u(t)$, $a > 0$ is _____

Options :

97108330509. ✓ $\frac{1}{a+j\omega}$

97108330510. ✗ $\frac{1}{a-j\omega}$

97108330511. ✗ $\frac{a}{1+j\omega}$

97108330512. ✗ $\frac{a}{1-j\omega}$

Question Number : 29 Question Id : 9710837635 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Find the sampling frequency to avoid aliasing for a band limited signal is given by $x(t) = 4 \sin 300\pi t$.

Options :

97108330513. ✗ 75 Hz

97108330514. ✗ 150 Hz

97108330515. ✗ 600 Hz

97108330516. ✓ 300 Hz

Question Number : 30 Question Id : 9710837636 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Find the analog output of a 4-bit R-2R digital-to-analog converter that has a reference of 5 volts when it is driven by an input code 0101.

Options :

97108330517. ✗ 0.3125 V

97108330518. ✓ 3.125 V

97108330519. ✗ 0.7812 V

97108330520. ✗ 7.812 V

Question Number : 31 Question Id : 9710837637 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The resolution of a 4-bit ADC is 0.5 V. For an analog input of 6.6 V, the digital output of the ADC will be

Options :

97108330521. ✖ 1011

97108330522. ✖ 1101

97108330523. ✖ 1100

97108330524. ✔ 1110

Question Number : 32 Question Id : 9710837638 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If an AM broadcast station transmits modulating frequencies up to 8 KHz over a carrier signal of frequency 0.912 MHz, then the values for upper side band frequency, lower side band frequency and total band width occupied by that AM station respectively are:

Options :

97108330525. ✖ 920 MHz, 904 MHz and 16 KHz

97108330526. ✔ 920 KHz, 904 KHz and 16 KHz

97108330527. ✖ 920 MHz, 904 KHz and 8 KHz

97108330528. ✖ 920 KHz, 904 MHz and 8 KHz

Question Number : 33 Question Id : 9710837639 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The sequence of operations done in transmission of PCM is _____

Options :

97108330529. ✔ sampling, quantizing and encoding

97108330530. ✖ sampling, encoding and quantizing

97108330531. ✖ quantizing, sampling and encoding

97108330532. ✖ quantizing, encoding and sampling

Question Number : 34 Question Id : 9710837640 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If 'v' is the number of bits per sample and f_m is the modulating frequency, then the expression for bandwidth (BW) of a PCM system is given by _____

Options :

97108330533. ✓ $BW \geq v f_m$

97108330534. ✗ $BW \leq v f_m$

97108330535. ✗ $BW \geq 2 v f_m$

97108330536. ✗ $BW \geq (1/2) v f_m$

Question Number : 35 Question Id : 9710837641 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the bandwidth of an ASK signal is 1200 Hz, then its baud rate and bit rate are _____ respectively.

Options :

97108330537. ✗ 1200 baud/s & 4800 bps

97108330538. ✗ 600 baud/s & 2400 bps

97108330539. ✗ 4800 bauds/s & 1200 bps

97108330540. ✓ 1200 baud/s & 1200 bps

Question Number : 36 Question Id : 9710837642 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

) If an 8-PSK signal has bandwidth of 4 KHz, then the bit rate and baud rate are _____ respectively.

Options :

97108330541. ✗ 8 kbps & 4 kbaud/s

97108330542. ✓ 12000 bps & 4000 baud/s

97108330543. ✗ 12000 kbps & 4000 kbaud/s

97108330544. ✗ 4 kbps & 4 kbaud/s

Question Number : 37 Question Id : 9710837643 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The coding technique that has maximum synchronizing capability is _____.

Options :

97108330545. ✖ Polar quaternary NRZ

97108330546. ✖ Polar RZ

97108330547. ✖ Polar NRZ

97108330548. ✔ Manchester format

Question Number : 38 Question Id : 9710837644 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Mode of transmission used in Paging system is _____.

Options :

97108330549. ✔ Simplex

97108330550. ✖ Half Duplex

97108330551. ✖ Duplex

97108330552. ✖ Full Duplex

Question Number : 39 Question Id : 9710837645 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

_____ will be transmitted along with the call initiation request during the origin of call by a mobile.

Options :

97108330553. ✖ MIN

97108330554. ✖ ESN

97108330555. ✖ ESN and SCM

97108330556. ✔ MIN, ESN and SCM

Question Number : 40 Question Id : 9710837646 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Modulation technique used in L1 Signal of the GPS is _____.

Options :

97108330557. ✖ Amplitude modulation

97108330558. ✖ Phase modulation

97108330559. ✔ Binary Phase shift keying

97108330560. ✖ Frequency shift keying

Question Number : 41 Question Id : 9710837647 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the r.m.s. value of half-wave rectified AC is 110 V, then the r.m.s. value of full-wave rectified AC will be _____.

Options :

97108330561. ✔ 155.6 V

97108330562. ✖ 311.2 V

97108330563. ✖ 220 V

97108330564. ✖ 190.5 V

Question Number : 42 Question Id : 9710837648 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Form factor is the ratio of _____.

Options :

97108330565. ✖ average value/r.m.s. value

97108330566. ✖ average value/peak value

97108330567. ✔ r.m.s value/average value

97108330568. ✖ r.m.s value/peak value

Question Number : 43 Question Id : 9710837649 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The input impedance of a quarter-wave line of 50 ohm and the load impedance of 20 ohm is _____.

Options :

97108330569. ✖ 20 ohm

97108330570. ✖ 30 ohm

97108330571. ✖ 50 ohm

97108330572. ✔ 125 ohm

Question Number : 44 Question Id : 9710837650 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If Z is a complex number, $|Z_1 + Z_2|$ is _____

Options :

97108330573. ✖ $> |Z_1| + |Z_2|$

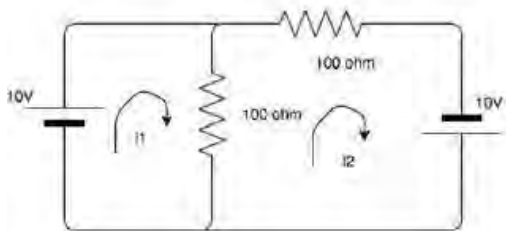
97108330574. ✖ $\leq Z_1 + Z_2$

97108330575. ✔ $\leq |Z_1| + |Z_2|$

97108330576. ✖ $> Z_1 + Z_2$

Question Number : 45 Question Id : 9710837651 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The values of the currents I_1 and I_2 in the following circuit are _____ respectively.



Options :

97108330577. ✖ 0.1 mA and 0.2 mA

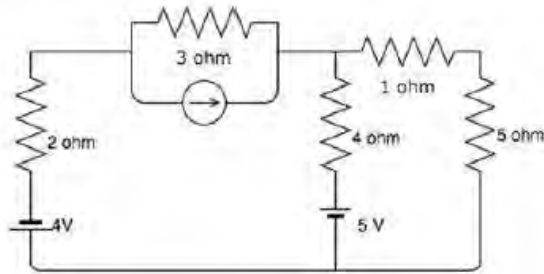
97108330578. ✔ 100 mA and 200 mA

97108330579. ✖ -100 mA and -200 mA

97108330580. ✖ -0.1 mA and -0.3 mA

Question Number : 46 Question Id : 9710837652 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If the current source has current of 5 A in the following circuit, then the voltage across the 5 ohm resistor is _____.



Options :

97108330581. ✔ 4.65 V

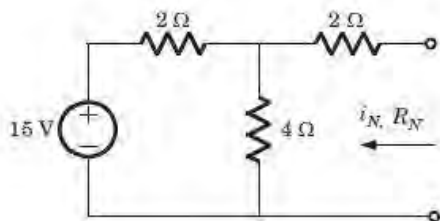
97108330582. ✖ 5.35 V

97108330583. ✖ 4.35 V

97108330584. ✖ 5.65 V

Question Number : 47 Question Id : 9710837653 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The values of i_N and R_N in the circuit given below are _____, respectively.



Options :

97108330585. ✔ 1.5 A and $10/3 \Omega$

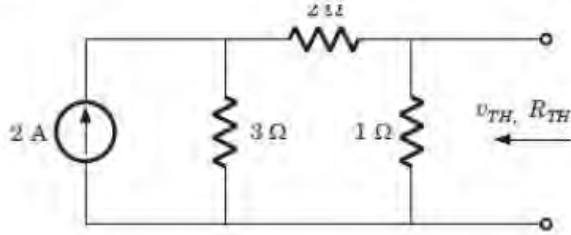
97108330586. ✖ 1.5 A & 5Ω

97108330587. ✖ 3 A and $10/3 \Omega$

97108330588. ✖ 6 A & 5 Ω

Question Number : 48 Question Id : 9710837654 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The values of V_{TH} and R_{TH} in the following circuit are _____, respectively.



Options :

97108330589. ✖ -2 V and 5/6 Ω

97108330590. ✖ -1 V and 5/6 Ω

97108330591. ✔ 1 V and 5/6 Ω

97108330592. ✖ 2 V and 6/5 Ω

Question Number : 49 Question Id : 9710837655 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

When the effect of one voltage source is being considered while the superposition theorem is applied, all other voltage sources and current sources are _____.

Options :

97108330593. ✔ shorted and opened, respectively

97108330594. ✖ opened and shorted, respectively

97108330595. ✖ both shorted

97108330596. ✖ both opened

Question Number : 50 Question Id : 9710837656 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The Reciprocity Theorem is applicable for _____.

Options :

97108330597. ✖ single voltage networks only

97108330598. ✖ single current source networks only

97108330599. ✔ single voltage source or single current source networks

97108330600. ✖ multi-source networks

Question Number : 51 Question Id : 9710837657 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

1. If source impedance (Z_s) is complex and load impedance is Z_L , then maximum power transfer occurs when _____.

Options :

97108330601. ✖ $Z_L = Z_s$

97108330602. ✖ $Z_L = -Z_s$

97108330603. ✔ $Z_L = Z_s^*$

97108330604. ✖ $Z_L = -Z_s^*$

Question Number : 52 Question Id : 9710837658 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Electron beam in cathode ray oscilloscope (CRO) is deflected in _____

Options :

97108330605. ✖ one direction

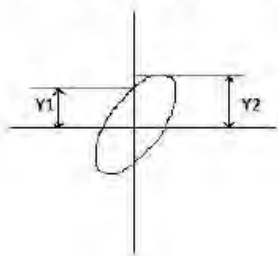
97108330606. ✔ two directions

97108330607. ✖ three directions

97108330608. ✖ four directions

Question Number : 53 Question Id : 9710837659 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The phase difference (ϕ) between two waveforms of amplitudes Y_1 and Y_2 as shown in the below figure is given by _____.



Options :

97108330609. ✓ $\phi = \sin^{-1} (Y_1/Y_2)$

97108330610. ✗ $\phi = \sin^{-1} (Y_2/Y_1)$

97108330611. ✗ $\phi = \tan^{-1} (Y_1/Y_2)$

97108330612. ✗ $\phi = \tan^{-1} (Y_2/Y_1)$

Question Number : 54 Question Id : 9710837660 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If the two input waveforms having phase difference 90° and equal amplitude are applied to a CRO, then the Lissajous pattern will be displayed as _____

Options :

97108330613. ✗ 45° inclined straight line

97108330614. ✗ vertical straight line

97108330615. ✗ ellipse

97108330616. ✓ circle

Question Number : 55 Question Id : 9710837661 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In an RC circuit, the expression of current (i) is represented by _____.

Options :

97108330617. ✗ $i = (V/R) e^{t/RC}$

97108330618. ✓ $i = (V/R) e^{-t/RC}$

97108330619. ✖ $i = -(V/R) e^{t/RC}$

97108330620. ✖ $i = -(V/R) e^{-t/RC}$

Question Number : 56 Question Id : 9710837662 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

In an RL circuit, If $X_L = 8 \Omega$ and $R = 6 \Omega$, then impedance (Z) of that circuit will be _____.

Options :

97108330621. ✔ 10Ω

97108330622. ✖ 14Ω

97108330623. ✖ 100Ω

97108330624. ✖ $\sqrt{28} \Omega$

Question Number : 57 Question Id : 9710837663 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following filters is used to change the phase of the input signal?

Options :

97108330625. ✔ All pass filter

97108330626. ✖ Low-pass filter

97108330627. ✖ High-pass filter

97108330628. ✖ Band pass filter

Question Number : 58 Question Id : 9710837664 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The cut-off frequency of an RC low-pass filter will be _____ when resistance is doubled and capacitance is halved.

Options :

97108330629. ✖ doubled

97108330630. ✖ halved

97108330631. ✖ four times

97108330632. ✔ remained same

Question Number : 59 Question Id : 9710837665 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The transfer function of integrator is _____

Options :

97108330633. ✖ $j\omega CR$

97108330634. ✔ $-1 / j\omega CR$

97108330635. ✖ $-j\omega CR$

97108330636. ✖ $1 / j\omega CR$

Question Number : 60 Question Id : 9710837666 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

An RC integrator behaves as _____.

Options :

97108330637. ✔ low-pass filter

97108330638. ✖ high-pass filter

97108330639. ✖ band-reject filter

97108330640. ✖ band-pass filter

Question Number : 61 Question Id : 9710837667 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The current in an RLC series circuit that is operating above the resonant frequency
_____.

Options :

97108330641. ✔ lags the applied voltage

97108330642. ✖ leads the applied voltage

97108330643. ✖ is in phase with the applied voltage

is zero

97108330644. ✖

Question Number : 62 Question Id : 9710837668 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

An RLC circuit consists a $50\ \Omega$ resistor, an inductor with reactance of $30\ \Omega$, and a capacitor with $45\ \Omega$ of reactance in series across a 10 V ac source. The current through the resistor is _____.

Options :

80 mA

97108330645. ✖

125 mA

97108330646. ✖

133 mA

97108330647. ✖

200 mA

97108330648. ✔

Question Number : 63 Question Id : 9710837669 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the resistance in parallel with a parallel resonant circuit is reduced, then the bandwidth _____.

Options :

becomes zero

97108330649. ✖

will not change

97108330650. ✖

decreases

97108330651. ✔

increases

97108330652. ✖

Question Number : 64 Question Id : 9710837670 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

At resonance condition, the voltage across the capacitor and inductor in an AC circuit is _____ the source voltage.

Options :

equal to

97108330653. ✖

much less than

97108330654. ✖

97108330655. ✖ less than

97108330656. ✔ greater than

Question Number : 65 Question Id : 9710837671 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

In general, the valency of a semiconductor is _____.

Options :

97108330657. ✖ 2

97108330658. ✖ 3

97108330659. ✔ 4

97108330660. ✖ 6

Question Number : 66 Question Id : 9710837672 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The potential barrier in a PN junction is due to _____.

Options :

97108330661. ✖ minority carriers

97108330662. ✖ majority carriers

97108330663. ✖ both (a) and (b)

97108330664. ✔ immobile ions

Question Number : 67 Question Id : 9710837673 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

In a reverse-biased silicon PN junction, the current through the junction increases abruptly at _____.

Options :

97108330665. ✖ cut-in voltage

97108330666. ✔ breakdown voltage

97108330667. ✖ 0.7 V

97108330668. ✖ 1.1 V

Question Number : 68 Question Id : 9710837674 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

A p-type semiconductor is _____.

Options :

97108330669. ✖ positively charged

97108330670. ✖ negatively charged

97108330671. ✔ electrically neutral

97108330672. ✖ a non-conductor

Question Number : 69 Question Id : 9710837675 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

For a transistor in CB configuration, $I_C = \alpha I_E +$ _____

Options :

97108330673. ✖ βI_B

97108330674. ✖ I_{CEO}

97108330675. ✔ I_{CBO}

97108330676. ✖ I_B

Question Number : 70 Question Id : 9710837676 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

In a transistor if $\beta = 50$ and collector current is 5 mA, then I_E is _____.

Options :

97108330677. ✖ 5.1 A

97108330678. ✔ 5.1 mA

97108330679. ✖ 15 mA

97108330680. ✖ 15 A

Question Number : 71 Question Id : 9710837677 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

For a transistor, the relation between β and α is _____.

Options :

97108330681. ✓ $\beta = \alpha / (1 - \alpha)$

97108330682. ✗ $\beta = 1 / (1 - \alpha)$

97108330683. ✗ $\beta = (1 - \alpha) / \alpha$

97108330684. ✗ $\beta = \alpha / (1 + \alpha)$

Question Number : 72 Question Id : 9710837678 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The phase difference between the input and output voltages of a transistor in CB configuration is _____.

Options :

97108330685. ✓ 0°

97108330686. ✗ 90°

97108330687. ✗ 180°

97108330688. ✗ 270°

Question Number : 73 Question Id : 9710837679 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

FET acts as constant current source in _____.

Options :

97108330689. ✗ pinch-off region

97108330690. ✗ breakdown region

97108330691. ✗ both (a) & (b)

97108330692. ✓ ohmic region

Question Number : 74 Question Id : 9710837680 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

FETs are preferred over BJT's at high frequencies, because they are

Options :

97108330693. ✖ easy to fabricate

97108330694. ✔ less noisy

97108330695. ✖ capable of handling highest frequencies

97108330696. ✖ All

Question Number : 75 Question Id : 9710837681 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The main demerit of a JFET is _____.

Options :

97108330697. ✖ low gain

97108330698. ✔ low gain-band width product

97108330699. ✖ high cost

97108330700. ✖ high noise level

Question Number : 76 Question Id : 9710837682 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The voltage-current (V-I) characteristics of unijunction transistor (UJT) is _____

Options :

97108330701. ✔ similar to tunnel diode in some aspects

97108330702. ✖ similar to BJT in CE mode with a linear and saturation region

97108330703. ✖ similar to FET with a linear and pinch off region

97108330704. ✖ similar to PN junction diode in some aspects

Question Number : 77 Question Id : 9710837683 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

An SCR is a solid state equivalent of _____.

Options :

97108330705. ✓ gas-filled triode

97108330706. ✗ triode

97108330707. ✗ tetrode

97108330708. ✗ pentode

Question Number : 78 Question Id : 9710837684 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

An SCR is sometimes called _____.

Options :

97108330709. ✗ diac

97108330710. ✗ triac

97108330711. ✗ UJT

97108330712. ✓ thyristor

Question Number : 79 Question Id : 9710837685 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Inert gas is used in photo electric transducers _____.

Options :

97108330713. ✗ to increase efficiency

97108330714. ✗ to increase robustness

97108330715. ✓ to increase sensitivity

97108330716. ✗ all

Question Number : 80 Question Id : 9710837686 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The more appropriate material from the following to make infrared LED is _____.

Options :

97108330717. ✖ Si

97108330718. ✖ CdS

97108330719. ✖ PbS

97108330720. ✔ GaAs

Question Number : 81 Question Id : 9710837687 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

For a half wave or full wave rectifier, the Peak Inverse Voltage (PIV) of the rectifier is always _____

Options :

97108330721. ✖ equal to the input voltage

97108330722. ✖ greater than the input voltage

97108330723. ✔ smaller than the input voltage

97108330724. ✖

greater than the input voltage for full wave rectifier and smaller for the half wave rectifier

Question Number : 82 Question Id : 9710837688 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The form factor for half wave rectified sine wave is _____

Options :

97108330725. ✔ 1.57

97108330726. ✖ 1.44

97108330727. ✖ 1.11

97108330728. ✖ 1.0

Question Number : 83 Question Id : 9710837689 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Load regulation is equal to _____

Options :

97108330729. ✖ $(V_{NL} - V_{FL}) \times 100 \%$

97108330730. ✖ $(V_{NL}/V_{FL}) \times 100\%$

97108330731. ✔ $(V_{NL} - V_{FL})/V_{FL} \times 100\%$

97108330732. ✖ $(V_{NL} + V_{FL})/V_{FL} \times 100\%$

Question Number : 84 Question Id : 9710837690 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following regulators offer inherent short-circuit protection?

Options :

97108330733. ✖ Series regulators

97108330734. ✔ Shunt regulators

97108330735. ✖ Switching regulators

97108330736. ✖ Three-terminal regulators

Question Number : 85 Question Id : 9710837691 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Switching regulators have _____ power dissipation and _____ efficiency.

Options :

97108330737. ✖ reduced, reduced

97108330738. ✔ reduced, increased

97108330739. ✖ increased, reduced

97108330740. ✖ increased, increased

Question Number : 86 Question Id : 9710837692 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The output of an RC-coupled amplifier is 1 V when an input signal of 10 mV at 1 KHz frequency is applied. Then, its decibel gain is _____.

Options :

97108330741. ✖ 10 dB

97108330742. ✖ 100

97108330743. ✖ 20 dB

97108330744. ✔ 40 dB

Question Number : 87 Question Id : 9710837693 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

In an RC coupled amplifier, the lower and upper cut-off frequency is also known as _____.

Options :

97108330745. ✖ resonant frequency

97108330746. ✖ 3 dB frequency

97108330747. ✖ half-power frequency

97108330748. ✔ 3 dB frequency and half-power frequency

Question Number : 88 Question Id : 9710837694 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The input and output capacitors in RC-coupled amplifier are known as _____ respectively.

Options :

97108330749. ✔ blocking and coupling capacitors

97108330750. ✖ blocking and bypass capacitors

97108330751. ✖ bypass and coupling capacitors

97108330752. ✖ coupling and bypass capacitors

Question Number : 89 Question Id : 9710837695 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The negative feedback fraction is always _____.

Options :

97108330753. ✖ equal to zero

97108330754. ✖ equal to one

97108330755. ✔ less than one

97108330756. ✖ greater than one

Question Number : 90 Question Id : 9710837696 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

In voltage-series feedback amplifier, the input impedance _____ and output impedance _____.

Options :

97108330757. ✖ decreases, decreases

97108330758. ✖ decreases, increases

97108330759. ✖ increases, increases

97108330760. ✔ increases, decreases

Question Number : 91 Question Id : 9710837697 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the fraction fed back to the input of an amplifier from its output of 10 V is 10 mV, then the feedback factor is _____.

Options :

97108330761. ✔ 0.01

97108330762. ✖ 0.1

97108330763. ✖ 1

97108330764. ✖ 100

Question Number : 92 Question Id : 9710837698 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The common-mode gain in an operational amplifier in ideal condition is _____.

Options :

97108330765. ✖ infinite

97108330766. ✔ zero

97108330767. ✖ one

97108330768. ✖ not predictable

Question Number : 93 Question Id : 9710837699 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The input impedance of an ideal Op-Amp is _____.

Options :

97108330769. ✖ zero

97108330770. ✔ infinite

97108330771. ✖ unity

97108330772. ✖ finite

Question Number : 94 Question Id : 9710837700 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The input offset current of an operational amplifier when the currents of $0.5\ \mu\text{A}$ and $0.2\ \mu\text{A}$ are flowing into its input terminals is _____.

Options :

97108330773. ✖ $350\ \text{nA}$

97108330774. ✖ $700\ \text{nA}$

97108330775. ✔ $300\ \text{nA}$

97108330776. ✖ $300\ \mu\text{A}$

Question Number : 95 Question Id : 9710837701 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the output of an Op-Amp increases by $6\ \text{V}$ in $12\ \mu\text{s}$, then its slew-rate is _____.

Options :

97108330777. ✖ 0.2 V/ μ s

97108330778. ✖ 0.2 μ s/V

97108330779. ✔ 0.5 V/ μ s

97108330780. ✖ 0.5 μ s/V

Question Number : 96 Question Id : 9710837702 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

. If $R_F = 10\text{ K}\Omega$ and $R_1 = 100\ \Omega$ in closed-loop inverting and non-inverting amplifiers, then their closed-loop voltage gains are _____, respectively.

Options :

97108330781. ✔ 100 and 101

97108330782. ✖ 101 and 100

97108330783. ✖ 0.01 and 1.01

97108330784. ✖ 1.01 and 0.01

Question Number : 97 Question Id : 9710837703 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Amplitude modulation is

Options :

97108330785. ✖ Change in amplitude of the modulating signal according to carrier signal

97108330786. ✖ Change in frequency of the modulating signal according to carrier signal

97108330787. ✖ Change in amplitude of the carrier according to modulating signal frequency

97108330788. ✔ Change in amplitude of the carrier according to modulating signal

Question Number : 98 Question Id : 9710837704 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The frequency spectrum of amplitude modulation consists _____.

Options :

97108330789. ✖ carrier frequency only

97108330790. ✖ lower-side frequency only

97108330791. ✖ upper-side frequency only

97108330792. ✔ carrier, lower-side and upper-side frequency

Question Number : 99 Question Id : 9710837705 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

If the modulating frequency ranges from 100 Hz to 8 KHz, then the bandwidth occupied by a DSB signal will be ____.

Options :

97108330793. ✔ 15.8 KHz

97108330794. ✖ 9 KHz

97108330795. ✖ 7.9 KHz

97108330796. ✖ 7 KHz

Question Number : 100 Question Id : 9710837706 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

The modulation index of FM is given by $m_f =$ _____.

Options :

97108330797. ✖ modulating frequency / frequency deviation

97108330798. ✖ modulating frequency / carrier frequency

97108330799. ✔ frequency deviation / modulating frequency

97108330800. ✖ carrier frequency / modulating frequency